Öhlins Front Fork Cartridge Kit for

Motocross and Enduro

Owner's Manual and General Mounting Instructions

ÖHLINS®
ADVANCED SUSPENSION TECHNOLOGY

Öhlins Headquarters Upplands Väsby, Sweden

Öhlins Racing AB - The Story

It was the 1970's, a young man named Kenth Öhlin spent most of his spare time pursuing his favourite sport: motocross.

Being a careful observer, Kenth's attention was continously drawn to one specific detail - motocross bikes had more engine power than their suspension could handle. It was not long before Kenth realised that better performance could be achieved by improved wheel suspension.

Öhlins Racing was established in 1976, and just two years later the company won its first World Championship title. Despite being in the business for almost 40 years, the search for perfection and new functions is still the main focus of the company.

Congratulations! You are now the owner of an Öhlins product More than two hundred World Championships and other major world titles are definitive proof that Öhlins suspension offer outstanding performance and reliability.

Every product has gone through rigorous testing and engineers have spent thousands of hours, doing their very best to use every possible experience from our almost 40 years within the racing sport.

The product that you now have in your possession is pure racing breed that is built to withstand.

By installing this product on your vehicle you have made a clear statement… you are a serious rider with a focus on getting the maximal handling ability and outstanding feedback from your vehicle. Along comes the fact that your Öhlins product will be a long lasting friend, delivering the very best of comfort and performance every time you go for a ride. Go explore!

SAFETY PRECAUTIONS

General Warnings

Note!

The shock absorber/front fork/steering damper is an important part of the vehicle and will affect the stability.

Note!

Read and ensure you understand the information in this manual and other technical documents provided by Öhlins, before using the product.

Note!

Öhlins Racing AB can not be held responsible for any damage to the shock absorber/front fork/steering damper, vehicle, other property or injury to persons, if the instructions for mounting, usage and maintenance are not followed exactly.

⚠ Warning!

After installing the Öhlins product, take a test ride at low speed to ensure your vehicle has maintained stability.

⚠ Warning!

If the suspension makes an abnormal noise, or the function is irregular, or if you notice any leakage from the product, stop the vehicle immediately and return the product to an Öhlins dealer.

⚠ Warning!

The product warranty shall only apply if the product has been operated and maintained in accordance with recommendations in this manual. If you have any questions regarding usage, service, inspection and/or maintenance please contact Öhlins.

Note!

When working with the Öhlins product, always read the vehicle service manual.

Note!

This manual shall be considered as a part of the product and shall accompany the product throughout its life cycle.

SAFETY SYMBOLS

In this manual, mounting instructions and other technical documents, important information concerning safety is distinguished by the following symbols:

⚠

The Safety Alert Symbol means: Warning! Your safety is involved.

⚠ Warning!

The Warning Symbol means: Failure to follow warning instructions can result in severe or fatal injury to anyone working with, inspecting or using the shock absorber, or to bystanders.

Caution!

The Caution Symbol means: Special precautions must be taken to avoid damage to the shock absorber.

Note!

The Note Symbol indicates information that is important regarding procedures.

Product Specific Warnings

⚠ Warning!

This product was developed and designed exclusively for a specific vehicle model and shall only be installed on the intended vehicle model in its original condition as delivered from the vehicle manufacturer.

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TOOLS

OEM Fork cap tool*	
Öhlins fork cap tool octagon	50 mm
Socket for OEM Base plug*	
Socket for Öhlins Base plug*	
Socket for Öhlins shaft end	12 mm
Pliers (for security snapring)	
Plug	01890-01

** See the Mounting Instructions*

1 INSTALL THE ÖHLINS CARTRIDGE KIT

Remove the original fork legs

⚠ Warning!

We strongly recommend to let an Öhlins dealer install this product.

⚠ Warning!

If you work with a lifted vehicle, make sure that it is safely supported to prevent it from tipping over.

Note!

When you work with this product, see the vehicle service manual for vehicle specific procedures and important data.

Note!

Before you install this product clean the vehicle.

1

Place the motorcycle on a work stand so that the front wheel barely touches the ground.

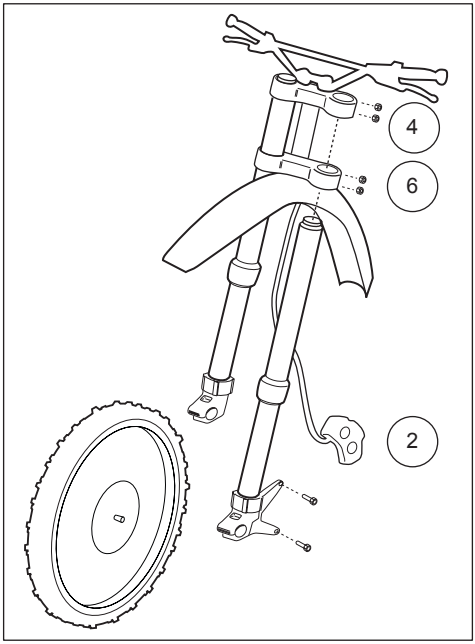
2

Remove the front wheel and the brake caliper.

3

Measure the distance from the top of the fork leg to the top of the upper triple clamp, see figure.

Note measure	
Fork height position	



4

Loosen the upper triple clamp screws.

5

Loosen the top cap ½ turn. Use an OEM Fork cap tool.

6

Loosen the lower triple clamp screws.

7

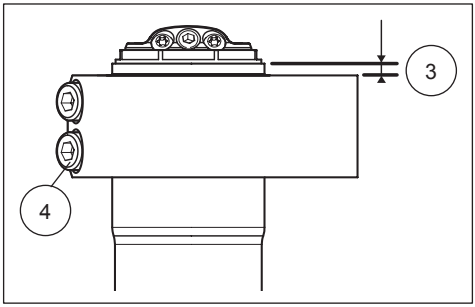
Remove the fork legs from the vehicle.

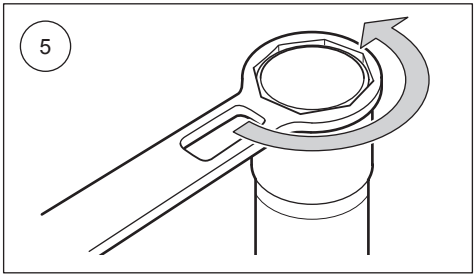
8

Clean the fork legs, make sure to clean underneath the fork bottom.

9

Refer to the vehicle service manual to remove the original front fork and spring from the fork leg. Turn the fork legs upside down and pour out all oil.





1 INSTALL THE ÖHLINS CARTRIDGE KIT

Install the Öhlins cartridge kit

Note!

Step 10 shall not be performed for some models. See the Mounting Instructions for the product.

10

Use contact cleaner to clean the contact surfaces between the hydraulic stop cup and the fork bottom.

Insert the hydraulic stop cup in the original fork leg, insert from the upper end of the fork tube.

Caution!

Make sure that the hydraulic stop cup is in correct position before you tighten.

11

Install and tighten the base plug into the fork bottom, tighten to 45 Nm.

Caution!

If the hydraulic stop cup rotates when you install and tighten, carefully use an impact machine.

12

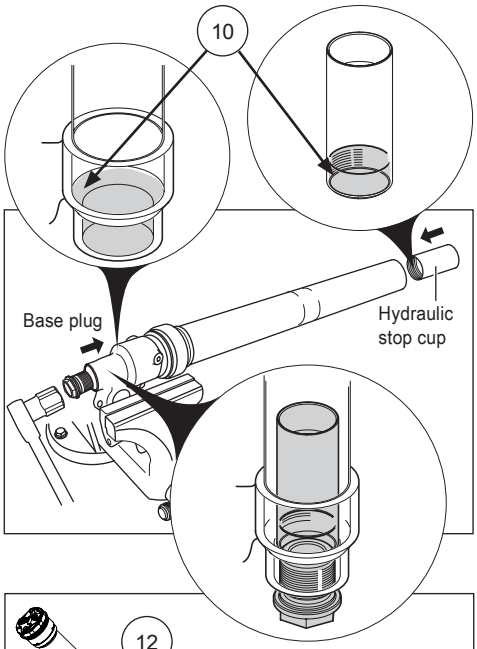
Insert the spring support washer, if any, the optional preload washer/s, recommeded spring and the cartridge kit into the original fork leg. See the Mounting Instructions for the product.

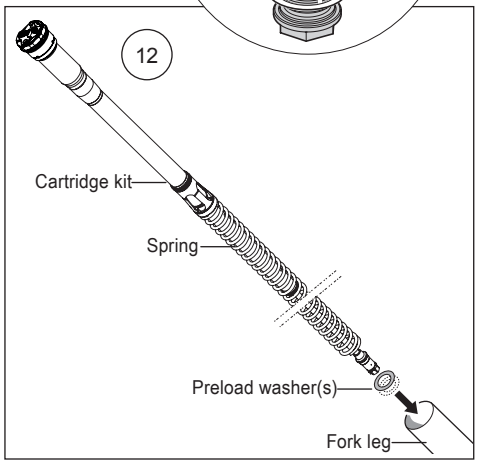
Note!

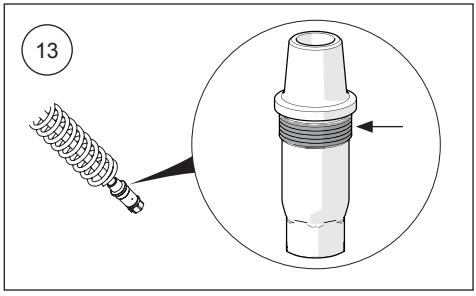
Place the preload washer/s below the spring, at the bottom end of the fork leg.

13

Apply grease on the thread of the piston rod end.







1 INSTALL THE ÖHLINS CARTRIDGE KIT

14

Use a 12 mm socket to tighten the cartridge shaft end into the base plug, turn counter clockwise and tighten to maximum 18 Nm. *Do not over tighten.*

15

Install the security snap-ring at the shaft end groove.

16

Pour Öhlins Front fork fluid in the fork leg, refer to the recommended setup in the Mounting instructions.

17

Make sure that the front fork is fully extended. Use the wrench (01892-01) to tighten the Öhlins fork top cap to maximum 10 Nm.

18

Check and set the rebound and compression valves click positions, refer to the recommended setup in the Mounting instructions.

19

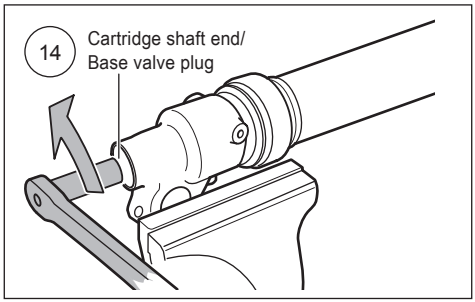
Install the front fork legs into the triple clamps. Set the fork legs at the same height position as before. Refer to the vehicle service manual for correct tightening torque.

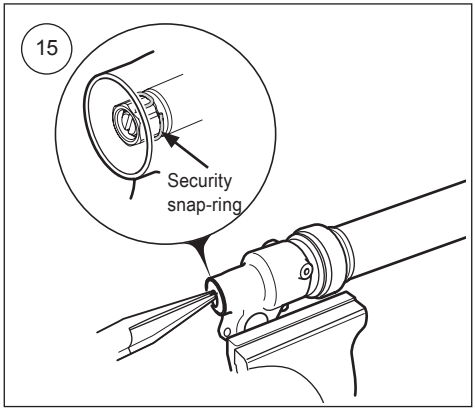
20

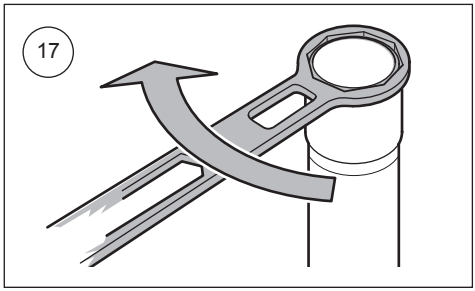
Install the brake caliper and the front wheel. Make sure that all removed parts are installed in the same positions that they were before.

Note!

It is very important to tighten the triple clamps to the correct torque, refer to the vehicle service manual.







2 CHANGE SPRING

1

Remove the original fork legs, see chapter 1.

2

Use a pair of pliers to remove the security snap-ring at the bottom of the fork.

3

Turn clockwise to loosen the bottom end of the cartridge kit.

4

Insert the plug (01890-01) into the fork bottom. The plug will keep the oil in the fork while you change the spring.

5

Remove the cartridge kit from the fork leg, change the spring. Note the plastic preload washer/s, if any.

Note!

Place the preload washer(s) below the spring, at the bottom end of the fork leg.

6

Extend the cartridge kit as much as possible with your hands.Install the cartridge kit into the fork leg and push out the plug (01890-01).

7

Tighten the shaft end counter clockwise into the fork bottom, tighten to 18 Nm.

8

Insert the security snap-ring.

9

Make sure the front fork is fully extended and tighten the Öhlins fork top cap. Use wrench (01892-01) and tighten to maximum 10 Nm.

Caution!

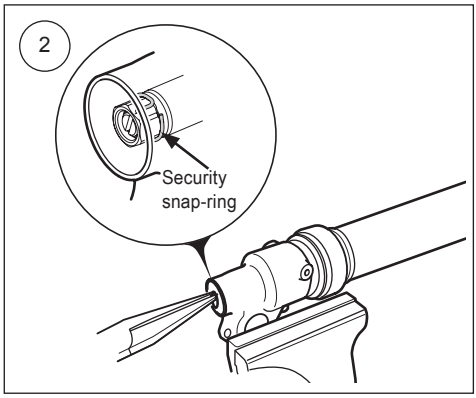
Do not tighten to more than 10 Nm.

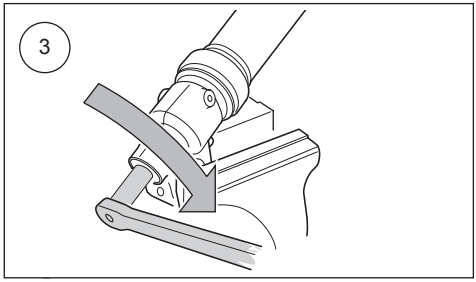
10

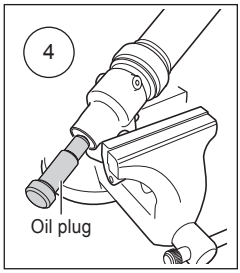
Install the front fork legs into the triple clamps. Set the fork legs at the same height position as before. Refer to the vehicle service manual for correct tightening torque.

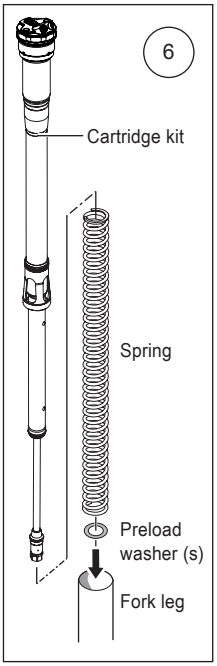
11

Install the brake caliper and the front wheel. Make sure that all removed parts are installed in the same positions that they were before.









3 SETUP

Check sag and ride height

1

Work on a flat surface. Put the motorcycle on a workstand so that both wheels are off the ground and the suspension is unloaded.

2

Mark, for example with a piece of tape, a point immediately above the rear wheel axle.

3 Measure R1

Measure the distance from the marked point to a fixed point, for example the wheel axle.

4 Measure R2

Put the motorcycle on the ground so that the rear suspensions is slightly compressed. Repeat the measurement process.

5 Measure R3

Sit on the motorcycle in normal riding position, properly outfitted in your riding gear. Repeat the measurement process.

Note measures	
R1	
R2	
R3	

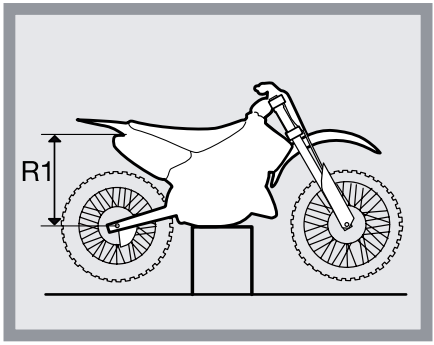
Recommended measures

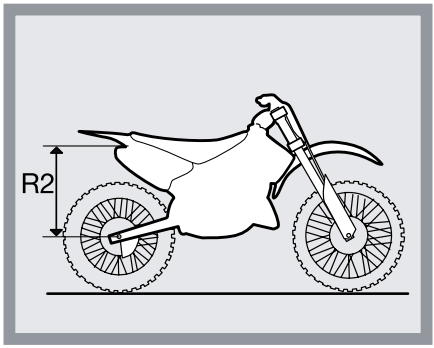
See the recommended free sag and ride height measures in the Öhlins Mounting Instructions for the shock absorber or in the vehicle service manual.

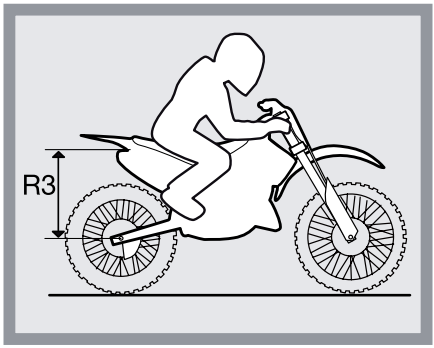
If the ride height still differs from the recommendations, you may need to change spring, contact an Öhlins dealer for advice.

⚠ Warning!

Incorrect spring rate may produce a fork angle that is too steep or too flat. This in turn can lead to a tendency for over- och understeering, which could seriously affect the handling characteristics of the motorcycle.







4 MEASURE THE SPRING PRELOAD

Fork springs may differ in length. Thus we recommend to measure the preload on each fork leg and install the required preload washers to get the correct measure.

Preload less than 0 mm will make the fork springs loose when the front wheel is off the ground, which can increase the risk of wear inside the fork.

Front Forks MY 2014

Recommended minimum spring preload: 4 mm

Caution!

Preload washers must be placed below the spring, otherwise they will restrict oil flow and the fork may break.

Measure the spring preload according to the steps 1-5 and see the figure below:

1 Measure A

Fork outer tube slid down to stop

MY ≤2013: Fork outer tube slid down to stop and cartridge left with full length. The internal gas pressure extends the cartridge.

MY 2014 (MX only): The internal spring will prevent the gas pressure from extending the cartridge, thus you must extend the cartridge with your hand 0-4 mm.

2

Measure B

3

Measure C

4

Calculate preload:

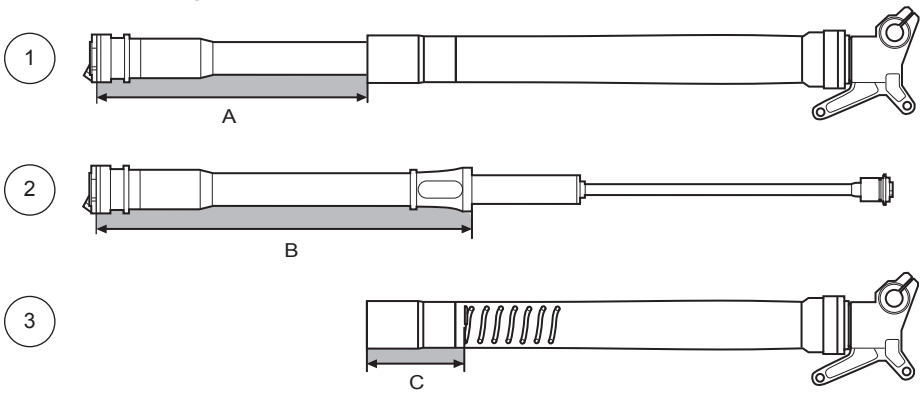
Preload = B - A - C

	Note measure
A	
B	
C	
Preload B-A-C =	

5

For recommended preload refer to the setup data in the Mounting Instructions or contact an Öhlins dealer for advice. To adjust the preload you add or remove washers below the spring.

Measure the spring preload



5 OIL LEVEL AND DAMPING

To set the oil level

Proper oil level is a balance between sufficient bottoming resistance and comfort. Higher oil level will give better bottoming resistance, but might reduce comfort over smaller bumps.

Bottoming issues

Increase oil level in steps of 10 ml until unpleasant bottoming no longer occurs, or until comfort on rest of the track becomes too harsh.

Harsh fork

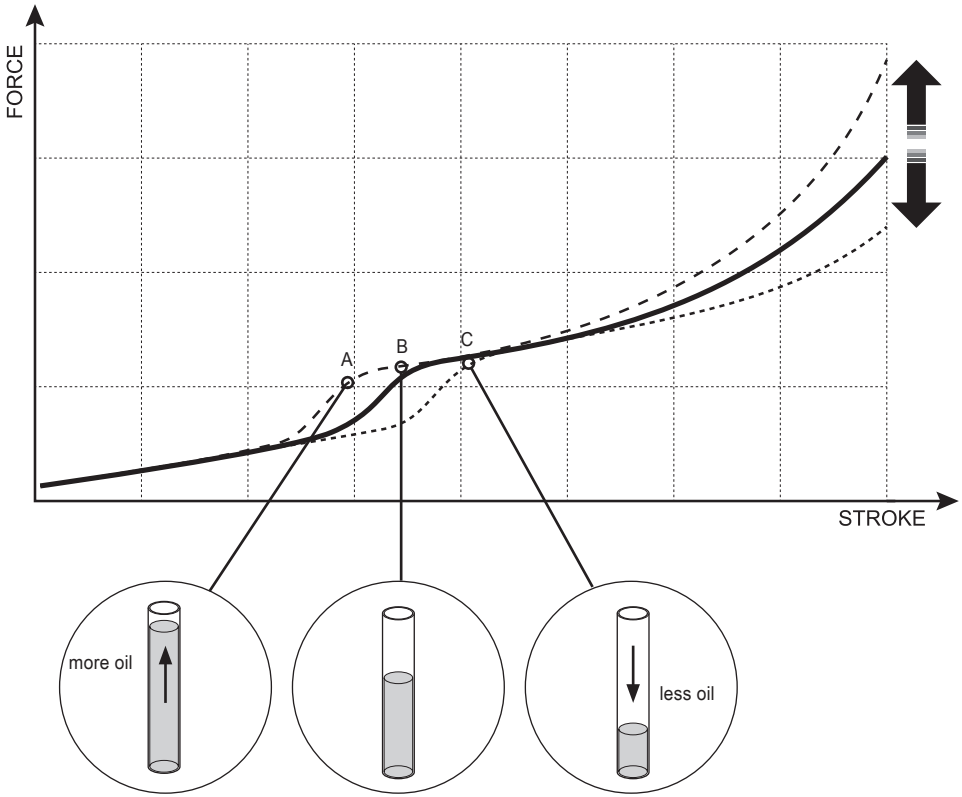
Try to decrease oil level in steps of 10 ml to gain comfort until harshness no longer occurs or bottoming resistance gets too low.

Additionally, lower oil level will let the fork dive longer into the stroke during braking before additional damping effect stiffens up the stroke, see position C in the figure below.

Very fast riders may appreciate the additional damping from a higher oil level on all parts of the track, as this keeps the fork running higher in the stroke, withstanding their additional forces due to their higher velocities.

Note!

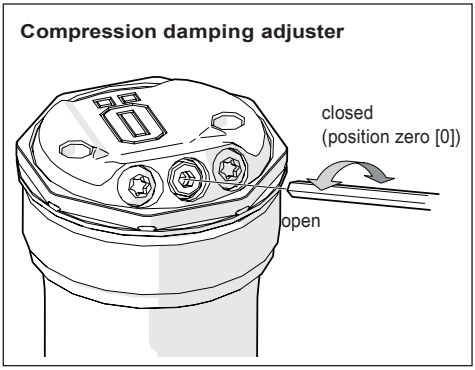
Since small amounts of oil have great influence on the performance, make sure to service a fork that leaks immediately. We highly recommend to have an Öhlins dealer service the fork.When you drain the fork, it is very important to let all oil drain out to obtain a proper oil level in the fork after service.



6 ADJUSTERS

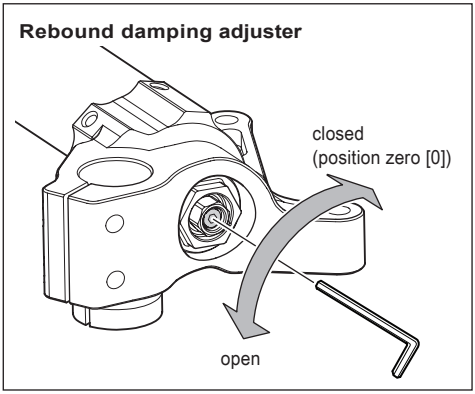
Compression damping adjuster

Use a 3 mm Allen key to adjust the compression damping adjuster.



Rebound damping adjuster

Use a 3 mm Allen key to adjust the rebound damping adjuster.



To set

The adjusters have a normal right hand thread. Turn the damping adjusters gently clockwise to fully closed (pos. zero [0]). To open, turn counter clockwise, and count the clicks until you reach the recommended number. For recommended clicks see the Setup data in the Mounting instructions or contact an Öhlins dealer for advice. To adjust the static sag you need to change to a softer or harder spring rate.

Caution!

Turn the adjusters gently not to damage delicate sealing surfaces.

Note!

The total front fork stroke may differ from the original stroke, so that more or less of the steel tube will be visible when the fork is fully compressed.

7 INSPECTION AND MAINTENANCE

Preventive maintenance and regular inspection reduces the risk of poor performance. If there is any need for additional service, please contact an Öhlins dealer.

After every ride

1. Place the motorcycle on a work stand so that the wheels barely touch the ground, suspension unloaded.
2. Let the bike cool off.
3. Aerate the front fork; Loosen the Breather plug to release excessive pressure in the front fork. Make sure to tighten the Breather plug after.

Recommended service intervals

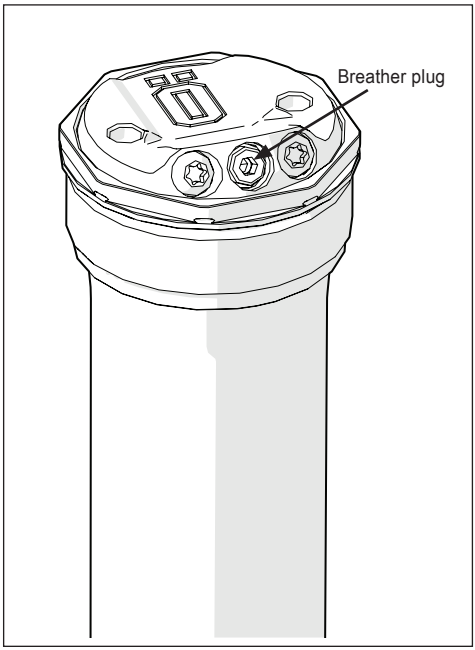
Recommended service every 20 hours

Note!

Contact an approved Öhlins dealer for service.

Disposal

Hand over your discarded Öhlins products to an approved Öhlins dealer for proper disposal.



NOTES

NOTES

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